**A REPRESENTATIVE EDM SYSTEM**

. SYSTEM ARCHITECTURAL DESCRIPTION

Hardware.  Hardware used for production in the EDM System is listed below:

> Pentium PCs
> > 21 inch monitors
> > Video Cards
> > LAN Interface Card
> 
> Kodak High Volume Scanners
> Fujitsu Low Volume Scanners
> SUN Workflow Servers
> SUN Image Servers
> HP/UX Database Servers
> RAID Devices
> Digital Linear Tape

Software.  Software used for production in the EDM System is listed below:

> Kodak ICMS Software
> Wang Open Image Software
> Wang Open Workflow Software
> Oracle Database Management System

Hardware and software lists do not necessarily reflect all manufacturers or model numbers of equipment. Significant customization of software has occurred.

Firmware.  There is no "firmware" associated with the EDM System.

System Interfaces and External Connections.  EDM works on the DFAS Enterprise Local Area Network (ELAN), with Internet access through Netscape to EDA documents on the DoD NIPRNET private network.  Figure 3.1 graphically displays the internal EDM architecture.

Key points of the high speed scanning volume are as follows:
- Contract Pay scanned the largest volume during a one month period: 310,470 images.
- Contract Pay scanned the largest volume in one day: 43,228 images.
- The average number of images scanned per day for Contract Pay was 5,401 utilizing two scanners.
- The average number of images scanned per day Vendor Pay was 4,699 utilizing two scanners.
- The maximum images scanned in one day for Vendor Pay was 11,123 images.

Key points of the fax server volume assessment are as follows:
- Vendor Pay received the largest number of faxes in one month: 49,977.
- Vendor Pay recorded the highest daily average of 3,232 faxes during one month.
- Contract Pay numbers average  93 images received each day.  The maximum number received in one day was 507.  These numbers are expected to increase over time.

**Figure 3.1 - Imaging Architecture**

. Data Flow.

Paper Document Preparation and Scanning. Document preparation and scanning are the same for each document, regardless of the business process and workflow. Figure 3.2 illustrates the mail input document handling process occurring with EDM. A description of each step illustrated in Figure 3.2 appears below.

- **Incoming Mail -** Arrives via standard carriers such as the U.S. mail or Federal Express. Documents included in the EDM workflow implementation will be prepared and scanned. All others will be processed as they are handled currently.

- **Document Preparation -** Open mail, remove staples and paper clips, unfold documents, and sort by functional area as well as single- or multiple-page documents.

- **Generate Batch Separator Sheets -** Operator generates a bar-coded batch control sheet, which provides the data required to automatically perform Tier 1 indexing. The Tier 1 index identifies the functional area responsible for document processing.

- **Generate Multi-Page Document Separator Sheets -** Operator generates a bar-coded separator sheet, which identifies multiple-page documents.

- **Insert Batch and Document Separator Sheets -** The Batch separator sheet is inserted at the beginning of each batch. The Multi-Page Document separator sheets are inserted between each multi-page document.

- **Scan -** Operator loads, scans, and subsequently stores a batch of documents for a period of time to allow for rescanning.

- **Quality Control -** Scanned documents are examined to determine image quality and readability. Any document deemed unreadable will be reviewed by a quality control person and rescanned, either individually or in a batch.

- **Tier 1 Indexing and Routing -** A program on the image server assigns the Tier 1 index data from the batch separator sheet to each image and stores it in the document management database. After automatic Tier 1 indexing, images are routed to Tier 2 for further indexing. Workflow cases are not created until after Tier 2 indexing is complete. Creation of workflow cases also depends on the document type selected during Tier 2 indexing. Not all documents create a workflow case. Some are just indexed and stored for future processing or research.

- **Tier 2 Indexing -** The Tier 2 index uniquely identifies each document. The Tier 2 indexer selects a prioritized work queue of images displayed on the screen, views each image in turn, selects the document type associated with the image, and enters the index fields that apply to that type of document. Examples of index fields entered in this process are contract number, invoice number, and receiving report date. Upon indexing completion, the image is either stored for future use or inserted in a workflow case which is then routed to the appropriate accounting technician for further data entry or processing. (NOTE: Future enhancements to the EDM System may include indexing of other functional areas such as Travel Accounting, Accounting Operations, and/or Disbursing).
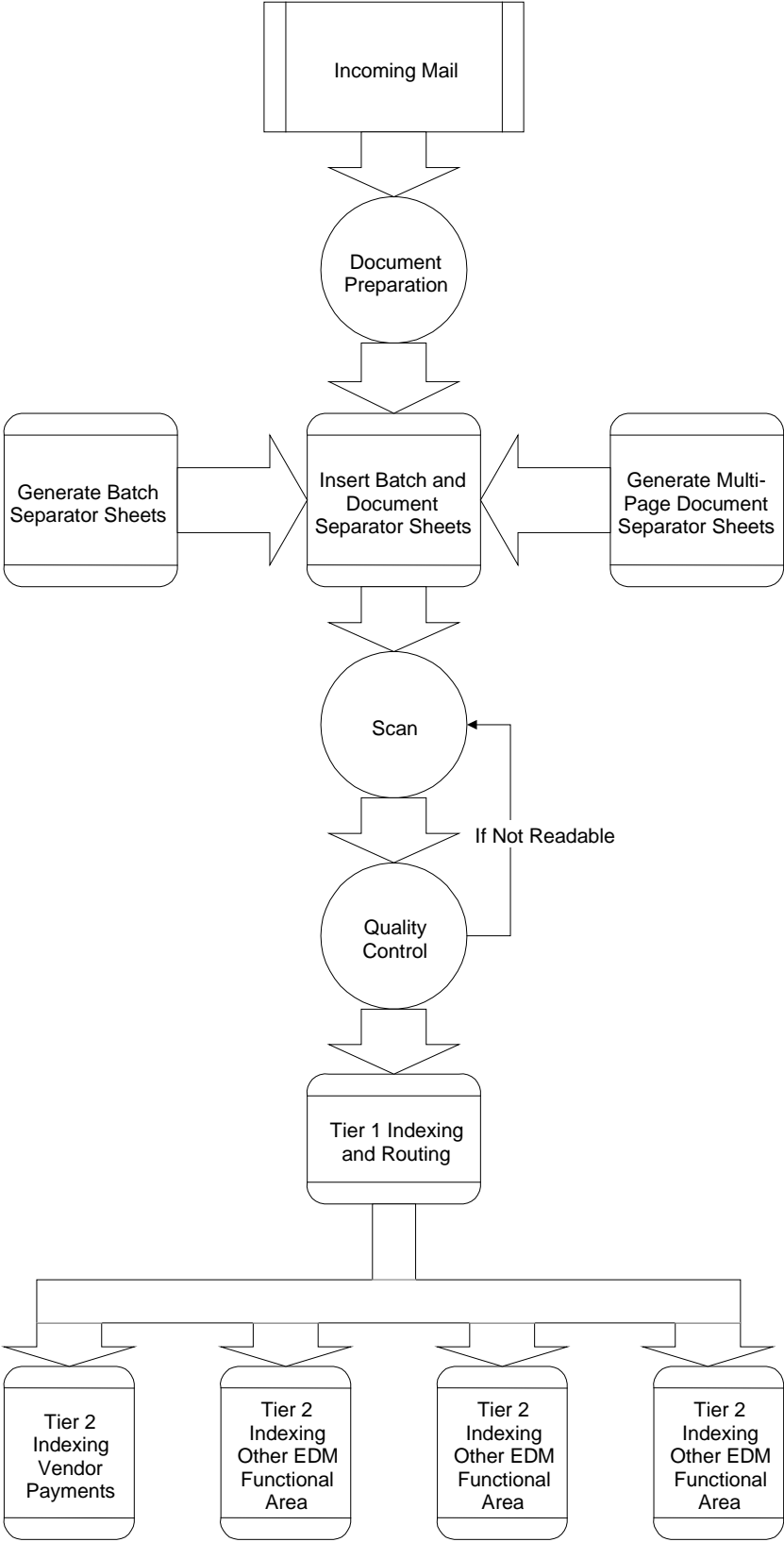
Incoming Mail

Document Preparation

Generate Batch Separator Sheets

Insert Batch and Document Separator Sheets

Generate Multi-Page Document Separator Sheets

Scan

If Not Readable

Quality Control

Tier 1 Indexing and Routing

Tier 2 Indexing Vendor Payments

Tier 2 Indexing Other EDM Functional Area

Tier 2 Indexing Other EDM Functional Area

Tier 2 Indexing Other EDM Functional Area

**Figure 3.2 – Mail Input Document Process**

FAXed Document Handling and Processing.  A description of the FAX document process follows:

- **FAX Documents -** FAX documents arrive via a FAX server located in the imaging control room, which supports one to 24 phone lines for both in-bound and out-bound FAXes.  The lines may be one or more 1-800 numbers for each functional area.

- **Remaining Steps -** The remaining steps in Figure 3.3 are identical to the steps described for handling mail input.  Upon entering the system, the FAX image is treated exactly the same as scanned document images.

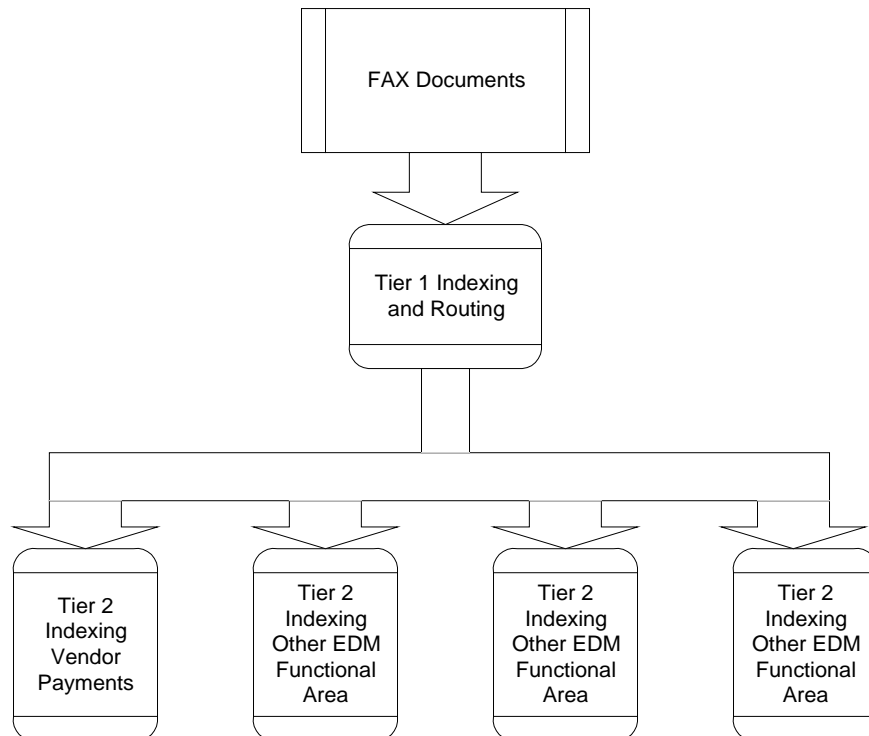Figure 3.3 illustrates the input FAX document process that will occur with EDM.

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                    ┌──────────────────────┐
                    │    FAX Documents     │
                    └──────────────────────┘
                               │
                    ┌──────────────────────┐
                    │   Tier 1 Indexing    │
                    │     and Routing      │
                    └──────────────────────┘
                               │
        ┌──────────┬───────────┼───────────┬──────────┐
        ▼          ▼           ▼           ▼          ▼
  ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
  │ Tier 2   │ │ Tier 2   │ │ Tier 2   │ │ Tier 2   │
  │ Indexing │ │ Indexing │ │ Indexing │ │ Indexing │
  │ Vendor   │ │ Other EDM│ │ Other EDM│ │ Other EDM│
  │ Payments │ │Functional│ │Functional│ │Functional│
  │          │ │  Area    │ │  Area    │ │  Area    │
  └──────────┘ └──────────┘ └──────────┘ └──────────┘
```

**Figure 3.3 - FAX Input Document Process**

. Print File Documents.  Print file documents are created by an AIS (e.g., SF1034) and are currently printed, however, they are needed by the EDM System as an electronic image.

A description of the processes illustrated in Figure 3.4 follows:

- **AIS-Sourced Print File Documents -** The print file documents produced by an AIS are needed by the EDM System as an electronic image.  They are routed to a program and are not printed.

- **Programmatic Tier 1 and Tier 2 Indexing and Routing -** The program extracts the required Tier 1 and Tier 2 index information from the file, converts the file to an image, stores the image as if it had been scanned, and then routes the images to the proper functional area for processing.
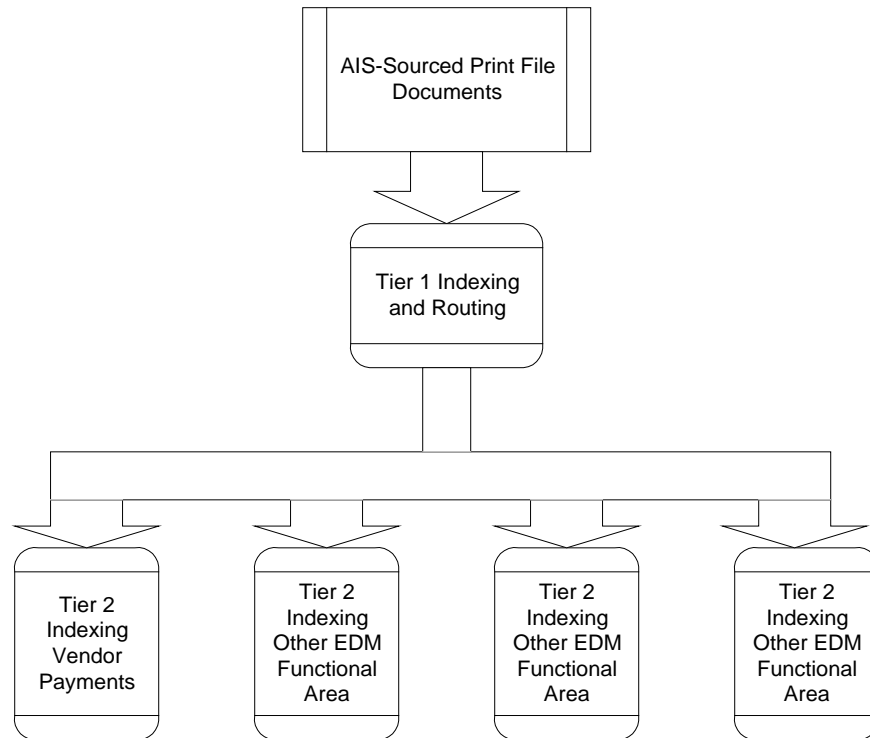
**Figure 3.4 - Print File Documents**

. Other Electronic Documents. Other electronic documents include any document or file created from a word processor, spreadsheet, or other PC-based program, or any message sent via e-mail. Figure 3.5 illustrates the process required by other electronic documents within EDM.

A description of the processes illustrated in Figure 3.5 follows:

- **PC-Based Electronic Documents -** Other electronic documents are created using a word processor, spreadsheet, or other PC-based program, or are received via e-mail. In vendor pay these types of documents are faxed to the EDM fax server where an image is created and Tier 1 indexing is applied. The documents are then routed to Tier 2 for further indexing. (At this point in time vendor pay does not have the capability to associate office automation documents to cases in EDM. The document must be faxed in and indexed before a user can attach it to a case. Vendor Pay has an approved Software Change Request (SCR) on file for this feature but it has not as yet been scheduled for design or development). After Tier 2 indexing, an EDM user can manually attach an office automation document to a case.
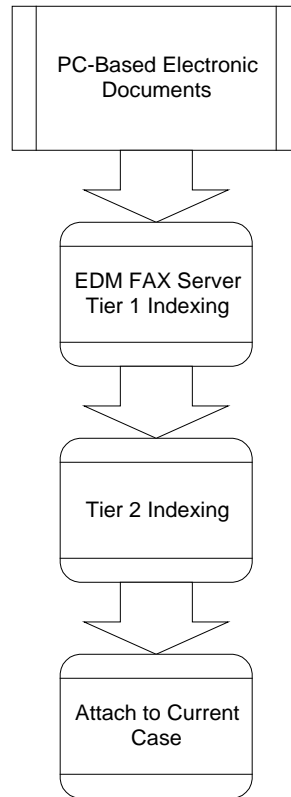
**Figure 3.5 - All Other Electronic Documents**